Next Generation Wireless Emergency Public Safety Communications Network

Evaluation Criteria List

DRAFT

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FE provides this first draft of the Next Generation Emergency Wireless Radio Communications Network evaluation criteria list for the purpose of evaluating potential voice system and data system solutions throughout the course of the project. These evaluation criteria establish a common framework for comparing and contrasting potential solutions for both voice and data systems.

Although some commonality for evaluation criteria does exist, *FE* has created separate evaluation criteria for potential voice and data solutions due to different characteristics and performance metrics. There are two deployment models to consider for each potential solution. The models are a single three-county network and three single-county networks. *FE*, in collaboration with the Project Steering Committee (PSC), will evaluate potential voice and data solutions against the appropriate criteria for each deployment model. As the process evolves, an evaluation matrix such as shown in Table 1 will result. This matrix will serve as the basis for subsequent discussions to determine the most feasible solution(s) for further analysis.

Table 1 – Evaluation Matrix

Evaluation Criteria	Potential Solutions						
	S1	S2	S3	S4	S5	S6	. . .
C1	✓	✗	✓	✓	✓	✗	✓
C2	✗	✓	✗	✓	✗	✗	✗
C3	✓	✓	✓	✗	✗	✓	✓
C4	✓	✗	✓	✓	✓	✓	✗
C5	✓	✓	✓	✗	✓	✓	✓
....	✓	✓	✗	✓	✗	✗	✗

FE provides draft evaluation criteria for PSC review in the following tables. Table 2 provides voice evaluation criteria and Table 3 provides data evaluation criteria. The first column in each table represents the evaluation criteria title. The second column provides a brief description of the question to answer for each solution along with the relative scale for evaluation.

FE understands that the PSC will review the criteria provided for completeness, and based on their review, may suggest additional or different criteria for *FE* to consider.

Table 2 – Voice system evaluation criteria

Voice System	
Evaluation Criteria	**Description**
Analog or Digital	Is this an analog or digital solution?
Open or Proprietary	Is this an open-standards or proprietary solution?
Conventional or Trunked	Is this a conventional or trunked solution?
Commercial or Private	Is this a commercial or privately operated solution?
Compatibility with Legacy Systems	Is the solution backward compatible with legacy systems? (Yes/No)
Maturity of the Technology	Does this solution use a proven technology with an established history of successful deployments? (Yes/No)
Quality of Coverage	Describe the level of coverage provided by this solution (Poor, Average, Good, Excellent)
Channel Capacity	Does the solution allow sufficient channels to support the needed capacity? (Insufficient/Sufficient)
Ease of Interoperability	How easy is it to interoperate with other systems? (Easy/Difficult)
Allows Encryption	Is encryption available? (Yes/No)
Resilience to Interference	How resilient to interference is the solution? (Low, Medium, High)
Spectrum Requirements	How much additional spectrum is required? (Low, Medium, High)
Spectral Efficiency	How efficient is the frequency utilization with regard to total number of channels compared to total assigned bandwidth? (Low, Medium, High)

Voice System	
Evaluation Criteria	**Description**
Reliability Level	How reliable is the solution? (Low, Medium, High)
Layers of Redundancy	Are there sufficient layers of redundancy to avoid failures? (Insufficient, Sufficient)
Ease of User Training	How easy is it to train users on the solution? (Easy/Difficult)
Ease of Network Operator Training	How easy is it to train network operators and technicians to operate and support the solution? (Easy/Difficult)
Ease of Expansion	How easy is it to expand the solution? (Easy/Difficult)
Roaming Capability	Will users be capable of roaming onto neighboring systems? (Yes/No)
Call Setup Time	What is the average length of call setup time during normal and peak load conditions? (short, medium, long)
Emergency Call Feature	Does the solution support the Emergency Call feature? (Yes/No)
Talkgroup Priority Feature	Is the Talkgroup Priority feature available on the solution? (Yes/No)
Agency Partitioning Feature	This feature allows an agency to partition their communication assets from that of another agency. Does the solution support Agency Partitioning? (Yes/No)
Over the Air Programming	Does the solution support over-the-air programming (OTAP) on subscriber units? (Yes/No)
Over the Air Rekeying	Does the solution support over the-air rekeying (OTAR) of subscriber units? (Yes/No)
Network Management Capabilities	What level of features and functionality does the Network Management System offer? (Low, Medium, High)

Voice System	
Evaluation Criteria	**Description**
Network Security	What is the level of system vulnerability to transmission and computer-based electronic intrusion? (Low, Medium, High)
Amount of Hardware	What amount of hardware must be installed to support this solution? (Low, Medium, High)
Portable Radio Form Factor	What size is the portable radio? (Small, Medium, Large)
Capital Cost	What is the capital outlay of the solution? (Low, Medium, High)
Operating and Maintenance Cost	What is the annual operating and maintenance cost of the solution? (Low, Medium, High)

Table 3 – Data system evaluation criteria

Data System	
Evaluation Criteria	**Description**
Open or Proprietary	Is this an open-standards or proprietary solution?
Conventional or Trunked	Is this a conventional or trunked solution?
Commercial or Private	Is this a commercial or privately operated solution?
Compatibility with Legacy Systems	Is the solution backward compatible with legacy systems? (Yes/No)
Maturity of the Technology	Does this solution use a proven technology with an established history of successful deployments? (Yes/No)
Quality of Coverage	Describe the level of coverage provided by this solution (Poor, Average, Good, Excellent)
Data Rate	What data rate does this solution support? (Low, Medium, High, Broadband)
Applications Supported	What applications does this solution support? (Text, Image, Browser, Multimedia)
Ease of Interoperability	How easy is it to interoperate with other systems? (Easy/Difficult)
Allows Encryption	Is encryption available? (Yes/No)
Resilience to Interference	How resilient to interference is the solution? (Low, Medium, High)
Spectrum Requirements	How much additional spectrum is required? (Low, Medium, High)
Spectral Efficiency	How efficient is the frequency utilization with regard to the total number of channels compared to the total assigned bandwidth? (Low, Medium, High)

Data System	
Evaluation Criteria	**Description**
Reliability Level	How reliable is the solution? (Low, Medium, High)
Layers of Redundancy	Are there sufficient layers of redundancy to avoid failures? (Insufficient, Sufficient)
Ease of User Training	How easy is it to train users on the solution? (Easy/Difficult)
Ease of Network Operator Training	How easy is it to train network operators and technicians to operate and support the solution? (Easy/Difficult)
Ease of Expansion	How easy is it to expand the solution? (Easy/Difficult)
Network Management Capabilities	What level of features and functionality does the Network Management offer? (Low, Medium, High)
Network Security	What is the level of level of system vulnerability to transmission and computer-based electronic intrusion? (Low, Medium, High)
Amount of Hardware	What amount of hardware must be installed to support this solution? (Low, Medium, High)
Data Device Form Factor	What size is the portable data device? (Small, Medium, Large)
Capital Cost	What is the capital outlay of the solution? (Low, Medium, High)
Operating and Maintenance Cost	What is the annual operating and maintenance cost of the solution? (Low, Medium, High)